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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,609	03/25/2004	Jean Frederic Melchior	P08216US00/DEJ	5021
881	7590	04/27/2005	EXAMINER	
STITES & HARBISON PLLC 1199 NORTH FAIRFAX STREET SUITE 900 ALEXANDRIA, VA 22314			TRIEU, THAI BA	
			ART UNIT	PAPER NUMBER
			3748	

DATE MAILED: 04/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/808,609

Applicant(s)

MELCHIOR, JEAN FREDERIC

Examiner

Thai-Ba Trieu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-50 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 06/14/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

For the purpose of this Office Action, the claims 1-50 will be examined as best understood by the examiner.

Information Disclosure Statement

The listing of references in the specification is not a proper information disclosure statement (See Page 36, lines 22-24; Page 53, line 5; and Page 54, lines 17 and 20). 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Specification

1. IN THE ABSTRACT:

Since the abstract is too long, applicant is required to submit a substitute abstract to meet the requirement set forth below:

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in

deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. IN THE SPECIFICATION:

1. The disclosure is objected to because of the following informalities:

- On Page 13, lines, 15, 17, 20, and 23 should be corrected by following:

a. ~~[[2-]]~~ The engine ~~[[according to 1- above]]~~ can provide that the EGR bypass or conduit ...

b. ~~[[3-]]~~ The engine ~~[[according to 1- above]]~~ can provide that the turbocharging unit...

c. ~~[[4-]]~~ In an advantageous manner, the engine ~~[[according to 4-]]~~ can provide that the EGR conduit ...

d. ~~[[5-]]~~ This engine ~~[[according to 2- above]]~~ can provide that the adjustment of the temperature...

- Applicant should follow the format as set forth above to make correction for pages 14-23.

Since claim may be amended, or cancelled, or renumbered during the prosecution of the instant application, and therefore, the applicant's format for the specification on pages 14-23 is not an appropriate.

2. On page 29, line 24, "**EGR valve 105**" should be replaced by – **EGR valve 104** – (for incorporating with Figure 5).

3. On Page 53, line 5, "**US Patent No. 5,551,954**" should be replaced by
-- **US Patent No. 5,517,954** – (for correcting typo error).

Appropriate correction is required.

Claim Suggestions

Applicant is suggested to correct the informalities of claims as following:

1. In claim 1:

-- **A** Reciprocating engine ~~[[used]]~~ **operating** between a minimum speed of rotation N_{min} and a maximum speed N_{max} , which comprises a turbocharging unit (2) dimensioned so as to function autonomously when:

~~[[it supplies the]]~~ **said turbocharging unit compressing air into an**
intake manifold (8) of the engine via a cooler;

~~[[it is supplied with gas by the]]~~ **said turbocharging unit receiving**
exhaust gas from an exhaust manifold (9, CR and CT) of the engine at the exhaust temperature;

the ~~[[turbine supply]]~~ pressure (P_3) at a turbine inlet is substantially equal to the ~~[[compressor discharge]]~~ pressure (P_2) at a compressor outlet/discharge,

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in such a way that at constant air temperature and with a fixed geometry, the turbocharging unit delivers a substantially constant volume of cooled air V_c when the pressure varies,

and that the volume V_c is substantially proportional to the turbine inlet section S_d offered to ~~[[the]]~~ hot gases,

wherein the ~~[[turbine]]~~ pressure (P_3) at the turbine inlet is maintained substantially equal to the ~~[[compressor]]~~ pressure (P_2) at the compressor outlet by a EGR bypass (3) between the intake manifold (8) and the exhaust manifold (9) dimensioned so as to transfer the flow of exhaust gas to the intake manifold without significant loss of pressure, and the volume of air V_c is less than the volume drawn in by the engine at the speed N_{max} in such a way that a flow of hot gases is drawn in again by the engine via the bypass (3) above the speed N_a , known as the turbocharging adaptation speed, where the volume drawn in is equal to V_c , and a flow of air is deflected towards the turbine below the speed N_a .--

2. In claim 2:

-- ~~[[Engine]]~~ The reciprocating engine as claimed in Claim 1, wherein the EGR bypass (3) has an EGR valve (6) ~~[[making it possible]]~~ to increase the turbine pressure above the compressor pressure.--

3. For claims 3-50, applicant should follow the suggestion set for the claims 1 and 2, to correct claims 3-50 with appropriate correction.

4. In claim 12, lines 9-11; and claim 49, lines 1-3, applicant is required to rewrite to meet the requirement set forth below:

- (j) Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet or electronic page (37 CFR 1.52(b)(3)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

A. Claims 1-50 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically,

1. In claim 1, line 10, the recitation of ***“when the pressure varies”*** renders the claim indefinite, since it is not clear that the pressure in which location of the engine will vary as the turbocharging unit delivers a substantially constant volume of cooling air. Applicant is required to identify the location where the pressure varies such as the pressure at the compressor inlet, the pressure at the compressor outlet, the pressure at the intake manifold etc...

2. In claims 2 and 3, the recitation of “making it possible” renders the claim indefinite, since it is not clear that under which condition the EGR valve is

capable of making the turbine pressure/the pressure at the turbine inlet increase, and under which condition the EGR valve is not capable of make the turbine pressure/the pressure at the turbine inlet increase. Applicant is required to define each condition.

3. In claim 4, the recitation of "preferably adjustable up" renders the claim indefinite, since it is not clear that why a gas cooler at an adjustable temperature is preferably adjustable up to the temperature of the fresh air, and when a gas cooler is preferably adjustable. Applicant is required to clarify the moment and the reason why for a gas cooler being preferably adjustable.

4. Claim 7 recites the limitation "***the mass***" before "***of the recycle gases***" and "***of the fresh air***" in line 2. There is insufficient antecedent basis for this limitation in the claim.

5. Claim 9 recites the limitation "***the adjustment***" before "***of the turbine valves***" in line 2. There is insufficient antecedent basis for this limitation in the claim.

6. Claim 10 recites the limitation "***the mass***" before "***of the recycle gases***" in line 4. There is insufficient antecedent basis for this limitation in the claim.

7. In claim 12, lines 3 and 4, the recitations of “preferably” and “can be adjusted” render the claim indefinite, since it is not clear that why a cooling of the air between the compressors and the exhaust outlet section is to be preferably adjusted, and under which condition a cooling of the air between the compressors and the exhaust outlet section can be adjusted, and under which condition a cooling of the air between the compressors and the exhaust outlet section cannot be adjusted. Applicant is required to explain the reason why a cooling of the air between the compressors and the exhaust outlet section is to be preferably adjusted; as well as, to identify each condition of a cooling of the air between the compressors and the exhaust outlet section.

8. In claim 13, the recitation of “if their distributor if variable and all the waste gates are closed if they exist” renders the claim unclear. Applicant is required to clearly revise or rewrite this limitation of the claim. The terms of “their” and “they” should be substitute by the element(s) that applicant wants to indicate such as turbines, or waste gates, or gases.

9. In claim 17, lines 5, 6, 8, 9, and 11; in claim 18, lines 5-8, and claim 19, line 5-8 the limitations of **“can be crossed”; “such as accelerating, overtaking, bursts of speed, etc...”**; **“may be crossed”; “can be increased”**; and **“their”** render the claim indefinite, since it is not clear that:

a. under which situation each configuration can be crossed for maneuvers of short duration, and under which situation each configuration cannot be crossed. Applicant is required to identify each condition.

b. the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

c. under which situation the thresholds may be crossed, and under which situation the thresholds may not be crossed. Applicant is required to define each situation.

d. under which condition the pressure of the exhaust manifold can be increased, and under which condition the pressure of the exhaust manifold cannot be increased. Applicant is required to define each condition.

e. the term "their" is used to reference to which elements such as turbines, or compressors, or valves etc... Applicant is required to substitute their by the indicated element.

10. Based on the rejection of 112, second paragraph set forth above, applicant is required to make correction or revise/rewrite for the following claim limitations:

a. in claim 23, line 1, the recitation of "can be controlled" (Having the same reason set forth above);

b. in claim 24, lines 5, 8, 12, "its" should be replaced by indicated element(s);

c. in claim 25, lines 6 and 11, the recitation of "can be controlled" (Having the same reason set forth above); and "their" should be replaced by indicated element(s);

d. in claim 26, lines 8, 12, and 16, "its" should be replaced by indicated element(s); and line 13, "can be effected" (Having similar reason set forth above);

e. in claim 28, line 13, "its" should be replaced by indicated element(s); and line 15, " can be made" (Having the similar reason set forth above);

f. in claims 29-38, line 2; and claim 39, line 5, "its" should be replaced by indicated element(s);

g. in claim 39, line 4, "this latter" should be replaced by indicated element(s);

h. in claims 41-42, line 1, "it" should be replaced by indicated element(s); and

i. in claim 3, line 2, "the latter" should be replaced by indicated element(s).

11. Claim 39 recites the limitation "***the chamber side***" and "***the intake pipe***" in line 2; "***the upper edge***" and "***the conical seat***" in line 3; etc.... There is insufficient antecedent basis for this limitation in the claim.

12. Claims 46-47 recite the limitation "***the ignition point***" in line 1. There is insufficient antecedent basis for this limitation in the claim.

13. Claim 48 recites the limitation "***the first ignition***" in line 1. There is insufficient antecedent basis for this limitation in the claim.

14. Claim 49 recites the limitation "***the self-ignition***" in line 5. There is insufficient antecedent basis for this limitation in the claim.

15. Claim 50 recites the limitation "***the meridian profile***" in line 1. There is insufficient antecedent basis for this limitation in the claim.

B. Regarding claim 12, the word "means" is preceded by the word(s) "***adjustment of the variable section; opening of a bypass; and passage form the series***" in an attempt to use a "means" clause to recite a claim element as a means for performing a specified function. However, since no function is specified by the word(s) preceding "means," it is impossible to determine the equivalents of the element, as

required by 35 U.S.C. 112, sixth paragraph. See *Ex parte Klumb*, 159 USPQ 694 (Bd. App. 1967).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Kim et al. (Patent Number EP 1 138 928 A2).

Kim discloses a reciprocating engine used between a minimum speed of rotation N_{min} and a maximum speed N_{max} , which comprises a turbocharging unit (18,20) dimensioned so as to function autonomously when:

it supplies the intake manifold (22) of the engine with air via a cooler (24) (See Figures 1 and 3-4, and Paragraph [0013]);

it is supplied with gas by the exhaust manifold (26) of the engine at the exhaust temperature (See Figures 1 and 3-4, and Paragraph [0013]);

the turbine supply pressure is substantially equal to the compressor discharge pressure (See Paragraph [0014])

in such a way that at constant air temperature and with a fixed geometry, the turbocharging delivers a substantially constant volume of cooled air V_c when the pressure varies,

and that the volume V_c is substantially proportional to the turbine inlet section S_d offered to the hot gases,

wherein the turbine pressure is maintained substantially equal to the compressor pressure by a EGR bypass (28) between the intake manifold (22) and the exhaust manifold (26) dimensioned so as to transfer the flow of exhaust gas to the intake manifold without significant loss of pressure, and the volume of air V_c is less than the volume drawn in by the engine at the speed N_{max} in such a way that a flow of hot gases is drawn in again by the engine via the bypass (3) above the speed N_a , known as the turbocharging adaptation speed, where the volume drawn in is equal to V_c , and a flow of air is deflected towards the turbine below the speed N_a (See Paragraph [0014], lines 43-50; Paragraph [0018], and Paragraph [0019]);

wherein the EGR bypass (28) has an EGR valve (36) making it possible to increase the turbine pressure above the compressor pressure (See Figure 1, Paragraph [0017], lines 1-4);

wherein the turbocharging unit has an intake valve (44) situated on the compressed air discharge conduit making it possible to increase the compressor pressure above the turbine pressure (See Paragraphs [0018] and [0019]); and

wherein the EGR bypass conduit (28) has a gas cooler (34) at an adjustable temperature, preferably adjustable up to a temperature close to that of the fresh air (See Figure 1).

Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Coleman (Patent Number 6,205,785 B1).

Coleman discloses a reciprocating engine used between a minimum speed of rotation N_{min} and a maximum speed N_{max} , which comprises a turbocharging unit (24,56,46) dimensioned so as to function autonomously when:

it supplies the intake manifold (22) of the engine with air via a cooler (26) (See Figures 1-2);

it is supplied with gas by the exhaust manifold (42a, 42b) of the engine at the exhaust temperature (See Figures 1-2);

the turbine supply pressure is substantially equal to the compressor discharge pressure (See Column 5, lines 12-17, Column 6, lines 55-56)

in such a way that at constant air temperature and with a fixed geometry, the turbocharging delivers a substantially constant volume of cooled air V_c when the pressure varies,

and that the volume V_c is substantially proportional to the turbine inlet section S_d offered to the hot gases,

wherein the turbine pressure is maintained substantially equal to the compressor pressure by a EGR bypass (50) between the intake manifold (22) and the exhaust manifold (42a,42b) dimensioned so as to transfer the flow of exhaust gas to the intake manifold without significant loss of pressure, and the volume of air V_c is less than the volume drawn in by the engine at the speed N_{max} in such a way that a flow of hot gases is drawn in again by the engine via

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the bypass (3) above the speed N_a , known as the turbocharging adaptation speed, where the volume drawn in is equal to V_c , and a flow of air is deflected towards the turbine below the speed N_a (See Column 2, lines 4-16, and Column 6, lines 52-61);

wherein the EGR bypass (50) has an EGR valve (52a, 52b) making it possible to increase the turbine pressure above the compressor pressure (See Column 5, lines 8-12).

Allowable Subject Matter

Claims 5-50 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

The IDS (PTO-1449) filed on June 14, 2004 has been considered. An initialized copy is attached hereto.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Engel et al. (US Patent Number 6,662,562 B2) disclose a method and device for regulating the boost pressure of a turbocharged internal combustion engine.
- Mazaus et al. (US Patent Number 6,625,986 B2) disclose a turbocharged a turbocharged internal combustion engine having a turbine power control.

- Finger et al. (US Patent Number 6,539,716 B2) disclose a turbocharged internal combustion engine having a compound power turbine.
- Gärtner (US Patent Number 6,397,597 B1) discloses a turbocharged internal combustion engine having a variable geometry turbine.
- McKinley et al. (US Patent Number 6,354,084 B1) disclose an exhaust gas recirculation system for a turbocharged internal combustion engine.
- Daudel et al. (US Patent Number 6,209,324 B1) disclose an exhaust turbocharged internal combustion engine having an exhaust gas recirculating system.
- Hiereth et al. (US Patent Number 5,406,796) disclose an exhaust gas turbocharger for a supercharged internal combustion engine.
- Sakakida et al. (Patent Number JP 10 318046 A) disclose an exhaust gas recirculation device for a supercharged engine.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai-Ba Trieu whose telephone number is (571) 272-4867. The examiner can normally be reached on Monday - Thursday (6:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

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Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TTB
April 25, 2005



Thai-Ba Trieu
Primary Examiner
Art Unit 3748



Approved for entry
04/25/05
TTB

REPLACEMENT SHEET

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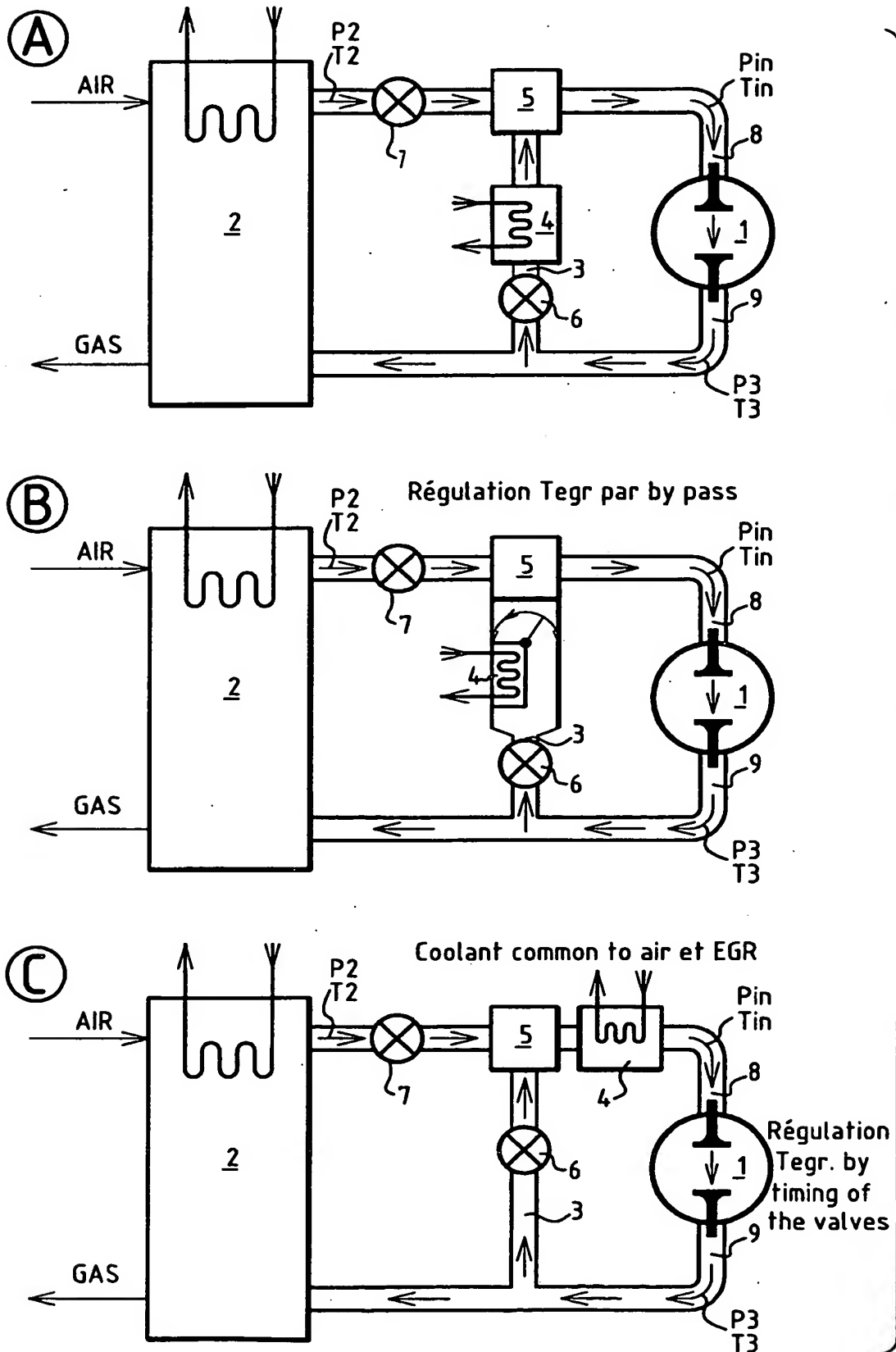


FIG.1